

REMARKS

This Amendment is responsive to the office action mailed 31 December 2007 and is accompanied by a Petition for One-Month Extension of time to extend the due date to at least 30 April 2008. Entry of the Amendment and reconsideration of the application with an eye toward allowance is respectfully requested.

Claim Objections

Claims 14 and 28 are objected to because of formalities. Claim 14 appears to contain a typographical error in the word "interconnecatable" (at line 3 of claim 14 and line 2 of claim 28) which should be --interconnectable--.

Applicant has amended claims 14 and 28 to incorporate the examiner's suggested spelling correction. This amendment is not related to patentability and is simply a typographical error correction.

Claim Rejections: 35 USC § 103

A summary of the Examiner's rejection of the claims under 35 USC § 103 follows:

Claims 7, 8, 24 and 27 are rejected under 35 USC§103(a) as being unpatentable over Morshed 6,760,903, in view of Chen, "MultiJav: a distributed shared memory system based on multiple Java virtual machines" ("Chen").

Claim 9 is rejected under 35 USC§103(a) as being unpatentable over Morshed and Chen in view of Scales 5,802,585.

Claims 14, 15, 26 and 28 are rejected under 35 USC§103(a) as being unpatentable over Scales in view of Chen.

Claim 16 is rejected under 35 USC§103(a) as being unpatentable over Scales and Chen as applied to claim 14, and further in view of Morshed.

Claims 17 and 18 are rejected under 35 USC§103(a) as being unpatentable over Scales and Chen as applied to claim 14, and further in view of Dimpsey 2004/0163077.

Claim 25 is rejected under 35 USC§103(a) as being unpatentable over Morshed and Chen as applied to claim 7, and further in view of Buhlman 6,862,608.

Applicant's response to 35 USC § 103 rejection:

Applicant respectfully submits that rejection of the claims under 35 U.S.C. 103(a) is not supported by the references cited. The cited art does not disclose or suggest each and every element of the claims, or motivate any need for combination or modification of the teachings or suggestions of the cited art.

Pending claims 7, 14, 27, and 28 are independent claims. Without admitting the propriety of any of the above claim rejections, Applicant has amended certain ones of the claims to more clearly distinguish over the cited art.

With particular reference to independent claim 7, this claim has been amended to require that "the plurality of computers being interconnectable via a communications link *without forming a distributed shared memory arrangement*". Claim 7 has also been amended to positively recite, separate from the claim preamble, that the application program loaded onto each different computer and modified on each different computer is "*written to operate only on a single computer*". Support for the added limitation that the computers are interconnectable without forming a distributed shared memory arrangement is to be found at least in the description of Fig. 3 and the first paragraph of page 6 where it is explained that if each of the machines has a shared memory capability of 10 MB, then the total shared memory available to the application is not, as one might expect 10n MB (on the basis of Fig. 3) but rather only 10MB. Applicant notes that although reciting so-called "negative limitations" in a claim may not be preferred, there is no prohibition against such negative claim limitations.

Applicant further notes that claim 7 already includes the "independent local memory" limitation that requires "different portions of said application program being simultaneously executable on each different one of the plurality of computers with each different one of the plurality of computers *having a different independent local memory accessible only by a corresponding portion of the application program*".

Claims 7, 8, 24 and 27 are rejected under 35 USC§103(a) as being unpatentable over Morshed 6,760,903, in view of Chen, "MultiJav: a distributed shared memory system based on multiple Java virtual machines" ("Chen").

Applicant submits that Morshed (US 6,760,903) discloses co-ordinated application monitoring in a *distributed* computing environment (emphasis added). (See for example, Morshed et al. at Title and Abstract.)

As a distributed computing environment, and in contrast to claims 7 and 14, which recite: "an application program written to operate only on a single computer," *Morshed et al.* discloses a "distributed application." Moreover, it is respectfully submitted that *Morshed et al.* is especially written to operate on two or more computers or machines. This concept is illustrated at FIG. 30 of *Morshed et al.* and disclosed when *Morshed et al.* described: "a distributed software application that executes in the system 1000 may include a portion of the software 1020 and also a portion of the software 1022 collectively with interprocess communication mechanism 1024." (See *Morshed et al.* at FIG. 30, column 33, lines 45-55.)

Furthermore, FIG. 37 of *Morshed et al.*, indicates communication by remote procedure calls between the client 1020 and server 1022 of FIG. 30 during the application program. That is, at least two computers are involved in executing the application program in *Morshed et al.* Further, FIG. 36 shows a case where two or more computers (i.e., 1020d, 1022d and 1022e) are involved in executing the application program. It will be appreciated that *Morshed et al.* operates in a way that is in contrast to at least the cited limitations of claims 7 and 14 as well as the other independent claims, namely "written to operate only on a single computer."

Additionally, due to the execution of the application being carried out by the second machine 1022 on behalf of the first machine 1020, the configuration of FIG. 30 may be likened to a master/slave relationship. This is in further contrast to the claimed invention where, as recited in claim 7 (different portions of said application program being simultaneously executable on each different one of the plurality of computers with each different one of the plurality of computers having a different independent local memory accessible only by a corresponding portion of the application program), and claim 14 (with different portions of said application program being simultaneously executable on different ones of said plurality of computers with each one of the plurality of computers having an independent local memory accessible only by the corresponding portion of the application program). Thus, in consideration of the above discussion, it is respectfully submitted that the cited art actually teaches away from the subject matter recited in Applicant's claims 7 and 14.

In addition, the examiner has conceded that *Morshed* does not expressly disclose "written to operate only on a single computer, but goes on to suggest that *Chen* teaches loading an application written to operate only on a single computer, on different computers. (The examiner cites the right hand column of page 1 "Thus, the same code can be run on a standalone machine without modification" as support for this suggestion.) The examiner then concludes that it would

have been obvious to one of ordinary skill in the art at that time the invention was made to use Chen's teaching of simultaneous execution of uniprocessor programs with Morshed's distribution in order to provide distributed computing while maintaining portability and adherence to standard specifications as suggested (in the examiner's opinion) by Chen.

Applicant respectfully disagrees with this characterization. Chen teaches a distributed shared memory system. Each of the independent claims, including independent Claims 7, 14, 27, and 28 require that the plurality of computers are interconnectable "without forming a distributed shared memory arrangement". Each of these independent claims also require "a different independent local memory accessible only by a corresponding portion of the application program" (See for example Claim 7). Each of the independent claims therefore recites two limitations that are incompatible with such distributed shared memory systems, in that the required independent local memory must exclude distributed shared memory systems. Therefore it is submitted that either the "without forming a distributed shared memory arrangement" or the "a different independent local memory" limitations alone are sufficient, and the two limitations in combination clearly make clear what is inherent in either limitation alone.

At least because Applicant's amended independent claims now exclude distributed shared memory systems, Applicant submits that Morshed and Chen should not be combined.

As already noted herein, the Examiner concedes that Morshed does not expressly disclose "written to operate only on a single computer". Chen, its Abstract makes it clear that "MultiJav..... [is a] distributed shared memory system for running parallel and distributed applications written in a standard language". Applicant submits that Applications written in a standard language to operate in parallel on a distributed memory system are clearly applications written to operate on two or more computers. Thus the Chen programs are not written to operate on only a single computer.

The referenced portion of the right column of page 1 of Chen (i.e., "Thus, the same code can be run on a stand-alone machine without modification") is taken out of context and needs to be interpreted in light of the preceding sentences which deal with the second attribute of MultiJav, namely, that "no additional, non-standard specifications are necessary". Thus the sentence to which the Examiner refers is not correctly construed relative to the rest of the reference or in comparison to Applicant's pending claims.

More particularly, although Chen's program written in MultiJav to operate on a distributed shared memory system as an application running on only a single computer of the distributed system, might also operate on a single stand-alone computer without code modification. This is

clearly not the same thing as required by the claim 7 for example, that recites a method in which an application program written to operate on a single computer is loaded onto each of a plurality of computers, *"the plurality of computers being interconnectable via a communications link without forming a distributed shared memory arrangement"* and wherein *"different portions of said application program being simultaneously executable on each different one of the plurality of computers with each different one of the plurality of computers having a different independent local memory accessible only by a corresponding portion of the application program"*. Each of the other independent claims recites a similar limitation.

Applicant therefore submits that neither Morshed nor Chen anticipates nor obviates the pending independent claims, and Applicant requests withdrawal of the 35 USC 103 based rejection.

Each of the dependent claims is patentable for at least the same reason as the underlying independent claim and further because each adds additional distinguishing limitations.

Claim 9 is rejected under 35 USC§103(a) as being unpatentable over Morshed and Chen in view of Scales 5,802,585.

Applicant submits that Claim 9, dependent from either of claims 7 or 8, is patentable for at least the same reason as underlying claim 7, and further because it adds particularity relative to the modifying step not disclosed in Scales. Recall that Scales *et al.* discloses a distributed application program. More specifically, Scales *et al.* discloses a "distributed application" written to operate on two or more machines. These steps are different at least because they pertain to a "distributed application" written to operate on two or more machines. Therefore, for at least the same reasons as discussed above for Morshed *et al.*, it is respectfully submitted that Scales *et al.* does not disclose, anticipate or inherently teach the claimed invention and that the independent claims and claims dependent thereon, patentably distinguish there over either alone or in combination with the other cited art.

Claims 14, 15, 26 and 28 are rejected under 35 USC§103(a) as being unpatentable over Scales in view of Chen.

Applicant reiterates that each of independent claims 14 and 28 distinguish over all cited art pertaining to distributed shared memory systems and methods. Claims 15 and 26 are dependent from claim 14. Applicant has distinguished Morshed, Chen, and Scales from the pending claims

and does not repeat them here except to reiterate that requiring and using independent local memory is vastly different from using distributed shared memory as argued above. Claim 15 adds the further requirement according to one embodiment in which the method of claim 14 and carried out prior to loading the application program onto each said computer. Claim 26 further requires that in the method of claim 14, the "program written to operate on only a single computer is a program written to execute within a local processor or processors and local memory coupled to the processor or processors within the single computer." These additional dependent elements further distinguish over Morshed, Chen, and Scales.

Claim 25 is rejected under 35 USC§103(a) as being unpatentable over Morshed and Chen as applied to claim 7, and further in view of Buhlman 6,862,608.

Morshed and Chen have been discussed above. Buhlman again is a reference that at most pertains to a distributed shared memory system. Furthermore, Buhlman introduces delay paths 26 (See Fig. 2, and column 4 lines 24-43) which very substantially slow the action of the processors and also the transmission of information in contravention of the intent of the instant application. Buhlman's reduction in latency comes with a reduction in overall transmission speed and considerable duplication of, and complication of, circuitry. Therefore, one would not seek to combine the teaching of Buhlman with any of the other citations to achieve the benefits of Applicant's invention.

Claim 25 has been amended only to add a period ":" at the end of the claim that was apparently inadvertently not included with the claim as filed. This amendment is to correct a typographical error and is not related to patentability.

Applicant notes that embodiments of the invention seek to avoid the delays inherent in one computer reading memory physically located in one or more other computers. Such delays are of the order of 10^6 to 10^7 clock cycles and are to be avoided. These types of delays must be incurred in distributed memory arrangements. For at least this reason all distributed memory arrangements teach away from the present invention which uses "independent memory" and wherein the communications network is "formed without forming a distributed shared memory arrangement" as recited in at least each independent claims (though the exact language may differ somewhat from claim to claim).

Applicant has added new claims 29-30 to recite some of these clock cycle delay related features and to further distinguish over conventional distributed shared memory arrangements.

Conclusion

Applicant believes that all pending claims are now allowable. Applicant respectfully requests that all rejections be withdrawn and a Notice of Allowance be issued at the earliest possible date.

If the Examiner believes a further conference would be of value in expediting the notice of allowance, or if the examiner identifies issues that might prevent issuance of such notice of allowance, he is cordially invited to telephone the undersigned counsel at (650) 838-4367.

Applicant believes that no fees are due pursuant to this response other than those submitted herewith. The Commissioner is authorized to charge Deposit Account Number 50-2207 for any fees including additional claims fee, fees for claims that have been converted from dependent to independent form and not already paid for, Petitions for Extension of Time fees or other fees that have not been separately paid, to make this response timely and acceptable to the Office.

Respectfully submitted,
Perkins Coie LLP


R. Michael Ananian, Reg. No. 35,050

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Correspondence Address

Customer No. 22918
P.O. Box 2168
Menlo Park, CA 94026